

**WHAT IS CLAIMED IS:**

1           1.       A data structure comprising:  
2           a data descriptor record, wherein said data descriptor record includes  
3                     at least one addressing field, and  
4                     a type field, wherein  
5                         said type field is configured to indicate a data structure type of  
6                         a data storage structure, and  
7                         said data storage structure is a data structure described by said  
8                         data descriptor record.

1           2.       The data structure of claim 1, wherein said at least one addressing field  
2 comprises:  
3           a base address field,  
4           an offset field, and  
5           a length field.

1           3.       The data structure of claim 2, wherein  
2           said data structure type is one of a contiguous buffer, a scatter-gather list and a  
3                     linked list structure.

1           4.       The data structure of claim 2, wherein  
2           said base address field is configured to store a base address,  
3           said base address is a starting address of a secondary data structure associated  
4                     with said data descriptor record, and  
5           said secondary data structure is said data storage structure.

1           5.       The data structure of claim 2, wherein  
2           said offset field is configured to indicate a starting address of data within a  
3                     secondary data structure pointed to by a base address stored in said  
4                     base address field, and  
5           said secondary data structure is said data storage structure.

1           6.     The data structure of claim 2, wherein  
2           said length field is configured to indicate a length of data stored in a secondary  
3           data structure pointed to by a base address stored in said base address  
4           field, and  
5           said secondary data structure is said data storage structure.

1           7.     The data structure of claim 2, wherein said data descriptor record  
2           further comprises:  
3           a context field.

1           8.     The data structure of claim 7, wherein said context field is configured  
2           to store information regarding an address space type in which said data descriptor  
3           record exists.

1           9.     The data structure of claim 2, wherein said data descriptor record  
2           further comprises:  
3           an in-line data field, and  
4           an in-line data buffer, wherein said data structure is said data storage  
5           structure..

1           10.    The data structure of claim 9, wherein said in-line data field is  
2           configured to store information regarding said in-line data buffer.

1           11.    The data structure of claim 10, wherein said information regarding said  
2           in-line data buffer includes a value representing a length of said in-line data buffer.

1           12.    The data structure of claim 11, wherein said length of said in-line data  
2           buffer is capable of assuming only set values.

1           13.    The data structure of claim 12, wherein said value assumes a non-zero  
2           value to indicate that said in-line data buffer is used.

1           14.     The data structure of claim 11, wherein said in-line data buffer is a  
2     variable-length buffer.

1           15.     The data structure of claim 10, wherein said in-line data buffer is  
2     configured to store data contiguously with said data descriptor record.

1           16.     A method of transferring data comprising:  
2     storing said data in a first data structure, wherein  
3                 said first data structure is in a first data structure format,  
4                 said first data structure format is defined by a first data descriptor  
5                 record associated with a first process, and  
6                 said first data structure occupies a memory space;  
7     passing a reference to said memory space from said first process to a second  
8     process; and  
9     reading said data from a second data structure using said reference, wherein  
10                said second data structure is in a second data structure format,  
11                said second data structure format is defined by a second data descriptor  
12                record associated with said second process, and  
13                said second data structure occupies at least a portion of said memory  
14                space.

1           17.     The method of claim 16, wherein said first and said second data  
2     structures are co-extensive.

1           18.     The method of claim 16, wherein said first and said second data  
2     structure formats differ.

1           19.     The method of claim 16, wherein said first data structure comprises a  
2     data structure that is equivalent to at least a portion of said second data structure.

1           20.    The method of claim 19, wherein said reference is a base address of  
2    said second data structure.

1           21.    The method of claim 16, wherein  
2    said first and said second data descriptor records each include  
3           at least one addressing field, and  
4           a type field, wherein  
5                    said type field is configured to indicate a data structure type of  
6                    a data storage structure, and  
7                    said data storage structure is a data structure described by said  
8                    data descriptor record.

1           22.    A computer system comprising:  
2    a processor;  
3    computer readable medium coupled to said processor; and  
4    computer code, encoded in said computer readable medium, configured to  
5           cause said processor to transfer data by virtue of causing said processor  
6           to:  
7           store said data in a first data structure, wherein  
8                    said first data structure is in a first data structure format,  
9                    said first data structure format is defined by a first data  
10                   descriptor record associated with a first process, and  
11                   said first data structure occupies a memory space;  
12           pass a reference to said memory space from said first process to a  
13                   second process; and  
14           read said data from a second data structure using said reference,  
15                   wherein  
16                   said second data structure is in a second data structure format,  
17                   said second data structure format is defined by a second data  
18                   descriptor record associated with said second process,  
19                   and

20 said second data structure occupies at least a portion of said  
21 memory space.

1 23. The computer system of claim 22, wherein said first and said second  
2 data structures are co-extensive.

1 24. The computer system of claim 22, wherein said first and said second  
2 data structure formats differ.

1 25. The computer system of claim 22, wherein said first data structure  
2 comprises a data structure that is equivalent to at least a portion of said second data  
3 structure.

1 26. The computer system of claim 25, wherein said reference is a base  
2 address of said second data structure.

1 27. The computer system of claim 25, wherein  
2 said first and said second data descriptor records each include  
3 at least one addressing field, and  
4 a type field, wherein  
5 said type field is configured to indicate a data structure type of  
6 a data storage structure, and  
7 said data storage structure is a data structure described by said  
8 data descriptor record.

1 28. A computer program product encoded in computer readable media,  
2 said computer program product configured as an operating system, said computer  
3 program product comprising:  
4 a first set of instructions, executable on a computer system, configured to store  
5 said data in a first data structure, wherein  
6 said first data structure is in a first data structure format,

7           said first data structure format is defined by a first data descriptor  
8           record associated with a first process, and  
9           said first data structure occupies a memory space;  
10          a second set of instructions, executable on said computer system, configured to  
11          pass a reference to said memory space from said first process to a  
12          second process; and  
13          a third set of instructions, executable on said computer system, configured to  
14          read said data from a second data structure using said reference,  
15          wherein  
16          said second data structure is in a second data structure format,  
17          said second data structure format is defined by a second data descriptor  
18          record associated with said second process, and  
19          said second data structure occupies at least a portion of said memory  
20          space.

1           29.    The computer program product of claim 28, wherein said first and said  
2           second data structures are co-extensive.

1           30.    The computer program product of claim 28, wherein said first and said  
2           second data structure formats differ.

1           31.    The computer program product of claim 28, wherein said first data  
2           structure comprises a data structure that is equivalent to at least a portion of said  
3           second data structure.

1           32.    The computer program product of claim 31, wherein said reference is a  
2           base address of said second data structure.

1           33.    The computer program product of claim 28, wherein  
2           said first and said second data descriptor records each include  
3           at least one addressing field, and  
4           a type field, wherein

5                   said type field is configured to indicate a data structure type of  
6                   a data storage structure, and  
7                   said data storage structure is a data structure described by said  
8                   data descriptor record.

1           34.    A method of transferring data comprising:  
2           storing said data in a first data structure, wherein said first data structure is in a  
3           first data structure format;  
4           copying said data from said first data structure to a second data structure,  
5           wherein said second data structure is in a second data structure format  
6           and said copying includes re-formatting said data from said first data  
7           structure format to said second data structure format; and  
8           reading said second data structure.

1           35.    The method of claim 34, wherein said re-formatting is performed just-  
2           in-time.

1           36.    The method of claim 34, wherein said copying comprises:  
2           passing said data between a first task and a second task by performing a fast-  
3           path message copy.

1           37.    The method of claim 36, wherein said performing said fast-path  
2           message copy comprises:  
3           copying said message from a memory space of said first task to a memory  
4           space of said second task.

1           38.    The method of claim 34, wherein said copying comprises:  
2           passing data between a first task and a second task by performing a message  
3           copy.

1           39.    The method of claim 38, wherein said performing said message copy  
2 comprises:  
3           copying said message from said first task to said thread control block/message  
4           structure;  
5           waiting for said thread to be queued to said thread queue; and  
6           copying said message from said thread control block/message structure to said  
7           second task.

1           40.    The method of claim 36, wherein said first task acts as a client task and  
2 said second task acts as a server task.